

1 WHAT IS CLAIMED IS:

- 2 1. A method for enhancing salt tolerance of a plant, the method
3 comprising,
4 a. introducing into the plant a polynucleotide encoding a Na⁺/H⁺
5 transporter polypeptide, which when expressed confers increased salt tolerance in the plant;
6 and wherein the transporter polypeptide comprises:
7 i. an amino acid sequence at least 80% identical to SEQ ID NO:2;
8 and
9 ii. fewer than 530 amino acids; and
10 b. selecting a plant with enhanced salt tolerance compared to a plant
11 where the polynucleotide was not introduced.
- 1 2. The method of claim 1 wherein the polynucleotide is SEQ ID NO:5 or
2 SEQ ID NO:11.
- 1 3. The method of claim 1 wherein the polypeptide conferring salt
2 tolerance is SEQ ID NO:6 or SEQ ID NO:12.
- 1 4. The method of claim 1 wherein the polynucleotide is SEQ ID NO:7 or
2 SEQ ID NO:13.
- 1 5. The method of claim 1 wherein the polypeptide conferring salt
2 tolerance is fewer than 500 amino acids.
- 1 6. The method of claim 1 wherein the polypeptide conferring salt
2 tolerance is SEQ ID NO:8 or SEQ ID NO:14.
- 1 7. The method of claim 1 wherein the polynucleotide is SEQ ID NO:9 or
2 SEQ ID NO:15.
- 1 8. The method of claim 1 wherein the polypeptide conferring salt
2 tolerance is fewer than 475 amino acids.
- 1 9. The method of claim 1 wherein the polypeptide conferring salt
2 tolerance is SEQ ID NO:10.
- 1 10. A method for enhancing salt tolerance of a plant, the method
2 comprising,

- 3 a. introducing into the plant a polynucleotide encoding a Na⁺/H⁺
4 transporter polypeptide, which when expressed confers increased salt tolerance in the plant;
5 and wherein the transporter polypeptide comprises:
6 i. an amino acid sequence at least 80% identical to SEQ ID NO:2;
7 and
8 ii. wherein the residue corresponding to the serine at position 508
9 in SEQ ID NO:2 is replaced by an amino acid that confers the increased salt tolerance of the
10 Na⁺/H⁺ transporter polypeptide; and
11 b. selecting a plant with enhanced salt tolerance compared to a plant
12 where the polynucleotide was not introduced.

1 11. The method according to claim 10 wherein the amino acid that
2 replaces the serine at position 508 is a neutral polar amino acid.

1 12. The method according to claim 10 wherein the amino acid that
2 replaces the serine at position 508 is selected from the group consisting of threonine,
3 methionine, cysteine, asparagine and glutamine.

1 13. The method according to claim 10 wherein the amino acid that
2 replaces the serine at position 508 is cysteine.

1 14. A purified polynucleotide comprising a nucleotide sequence encoding
2 a Na⁺/H⁺ transporter polypeptide which when expressed confers increased salt tolerance in a
3 plant; wherein the transporter polypeptide comprises:

4 i. an amino acid sequence at least 80% identical to SEQ ID NO:2;
5 and

6 ii. fewer than 522 amino acids.

1 15. The polynucleotide of claim 14 wherein the nucleotide sequence is
2 selected from the group consisting of SEQ ID NOS:5, 7, 9, 11, 13 and 15.

1 16. The polypeptide of claim 14 wherein the amino acid sequence is
2 selected from the group consisting of SEQ ID NOS:6, 8, 10, 12, 14 and 16.

1 17. The polynucleotide according to claim 10, wherein the nucleotide
2 sequence is SEQ ID NO:3.

1 18. The polypeptide according to claim 10, wherein the amino acid
2 sequence is SEQ ID NO:4.

1 19. A transgenic or mutagenized plant comprising a polynucleotide
2 encoding a Na⁺/H⁺ transporter polypeptide, which when expressed confers increased salt
3 tolerance in the plant; and wherein the transporter polypeptide comprises an amino acid
4 sequence at least 80% identical to SEQ ID NO:2 of fewer than 530 amino acids.
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1 20. A transgenic or mutagenized plant comprising a polynucleotide
2 encoding a Na⁺/H⁺ transporter polypeptide, which when expressed confers increased salt
3 tolerance in the plant; and wherein the transporter polypeptide comprises an amino acid
4 sequence at least 80% identical to SEQ ID NO:2; and
5 wherein the residue corresponding to the serine at position 508 in SEQ ID
6 NO:2 is replaced by an amino acid that confers the increased salt tolerance